Sunshine Act Meetings

Federal Register
Vol. 50, No. 238
Wednesday, December 11, 1985

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

CONTENTS

1

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

TIME AND DATE: 12:00 Noon, Monday, December 16, 1985.

PLACE: Marriner S. Eccles Federal Reserve Board Building, C Street entrance between 20th and 21st Streets, NW., Washington, DC 20551.

STATUS: Closed.

MATTERS TO BE CONSIDERED:

1. Personnel actions (appointments, promotions, assignments, reassignments, and salary actions) involving individual Federal Reserve System employees.
2. Any items carried forward from a previously announced meeting.

CONTACT PERSON FOR MORE INFORMATION: Mr. Joseph R. Coyne, Assistant to the Board; (202) 452–3204. You may call (202) 452–3207, beginning at approximately 5 p.m. two business days before this meeting, for a recorded announcement of bank and bank holding company applications scheduled for the meeting.

Dated: December 6, 1985.

James McAfee,

Associate Secretary of the Board.

[FR Doc. 85–29398 Filed 12–6–85; 4:36 pm]

BILLING CODE 6210–01–M

2

EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT: 28637, dated December 2, 1985.

PREVIOUSLY ANNOUNCED TIME AND DATE OF MEETING: 2:00 p.m. (eastern time) Monday, December 9, 1985.

CHANGE IN THE MEETING: The following item has been added to the closed portion of the meeting:

"Recommendation for Participation as Amicus Curiae"

A majority of the entire membership of the Commission determined by recorded vote that the business of the Commission required this change and that no earlier announcement was possible.

In favor of change:

Clarence Thomas, Chairman
Tony E. Gallegos, Commissioner
William A. Webb, Commissioner
Fred W. Alvarez, Commissioner
R. Gaull Silberman, Commissioner

CONTACT PERSON FOR MORE INFORMATION: Cynthia C. Matthews, Executive Officer, Executive Secretariat at (202) 634–6748.

Dated: December 9, 1985.

Johnnie L. Johnson, Jr.,

Attorney Advisor.

This Notice Issued December 9, 1985.

[FR Doc. 85–29489 Filed 12–9–85; 3:59 pm]

BILLING CODE 6750–06–M

3

FEDERAL COMMUNICATIONS COMMISSION

December 5, 1985.

Additional Item To Be Considered at Open Meeting, Tuesday, December 10th

The Federal Communications Commission will consider an additional item on the subject listed below at the Open Meeting scheduled for 2:00 p.m., Tuesday, December 10, 1985 at 1919 M Street, NW., Washington, DC.

Agenda, Item No., and Subject

Mass Media—3—Title: Amendment of § 73.606(b), TV Table of Assignments for Ventura, California. Summary: The Commission will consider the substitution of a UHF television channel for Channel 16 at Ventura, California, to enable the Los Angeles County Sheriff's Department to use Channel 16 for public safety purposes.

The prompt and orderly conduct of Commission business requires that less than 7-days notice be given consideration to this additional item.

Action by the Commission December 5, 1985. Commissioners Fowler, Chairman; Quello, Dawson and Patrick voting to consider this additional item.

Additional information concerning this meeting may be obtained from Judith Kurtich, FCC Office of Congressional and Public Affairs, telephone number (202) 254–7674.

Issued: December 5, 1985.

Federal Communications Commission.

William J. Tricarico,

Secretary.

[FR Doc. 85–29436 Filed 12–9–85; 10:39 am]

BILLING CODE 6712–01–M

4

FEDERAL DEPOSIT INSURANCE CORPORATION

Agency Meeting

Pursuant to the provisions of the "Government in the Sunshine Act" (5 U.S.C. 552b), notice is hereby given that at 5:11 p.m. on Thursday, December 5, 1985, the Board of Directors of the Federal Deposit Insurance Corporation met in closed session, by telephone conference call, to:

(A) Adopt a resolution making funds available for the payment of insured deposits made in Security State Bank, Broken Bow, Nebraska, which was closed by the Director of Banking and Finance for the State of Nebraska on Thursday, December 5, 1985; and

(B) Adopt a resolution making funds available for the payment of insured deposits made in The Farmers and Merchants National Bank of Hennessey, Hennessey, Oklahoma, which was closed by the Deputy Comptroller of the Currency, Office of the Comptroller of the Currency, on Thursday, December 5, 1985.

In calling the meeting, the Board determined, on motion of Chairman L. William Seidman, seconded by Director Irvine H. Sprague (Appointive), concurred in by Director Robert L. Clarke (Comptroller of the Currency), that Corporation business required its consideration of the matters on less than seven days' notice to the public; that no earlier notice of the meeting was practicable; that the public interest did not require consideration of the matters in a meeting open to public observation; and that the matters could be considered in a closed meeting pursuant to subsections (c)(8), (c)(9)(A)(ii), and (c)(9)(B) of the "Government in the Sunshine Act" (5 U.S.C. 552b (c)(8), (c)(9)(A)(ii), and (c)(9)(B)).

Dated: December 6, 1985.

Federal Deposit Insurance Corporation.

Hoyle L. Robinson,

Executive Secretary.

[FR Doc. 85-29449 Filed 12-9-85; 11:35 am]

BILLING CODE 6714-01-M

5

INTERNATIONAL TRADE COMMISSION

TIME AND DATE: Friday, December 20, 1985 at 2:00 p.m.

PLACE: Room 117, 701 E Street, NW., Washington, DC 20436.

STATUS: Open to the public.

MATTERS TO BE CONSIDERED:

1. Agenda.
2. Minutes.
3. Ratification List.
4. Petitions and Complaints.
5. Investigation 731-TA-292/296 [Preliminary] (Certain welded carbon steel pipes and tubes from the People's Republic of China, the Philippines, and Singapore)—briefing and vote.
6. Any items left over from previous agenda.

CONTACT PERSON FOR MORE INFORMATION: Kenneth R. Mason, Secretary, (202) 523-0161.

Dated: December 4, 1985.

Kenneth R. Mason,

Secretary.

[FR Doc. 85-29413 Filed 12-6-85; 5:11 pm]

BILLING CODE 7020-02-M

6

OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

TIME AND DATE: 10:00 a.m., Thursday, December 19, 1985.

PLACE: Suite 410, 1825 K Street, NW., Washington, DC.

STATUS: Because of the subject matter, it is likely that this meeting will be closed.

MATTERS TO BE CONSIDERED: Discussion of specific cases in the Commission adjudicative process.

CONTACT PERSON FOR MORE INFORMATION: Mrs. Mary Ann Miller (202) 634-4015.

Dated: December 9, 1985.

Earl R. Ohman, Jr.,

General Counsel.

[FR Doc. 85-29479 Filed 12-9-85; 3:16 am]

BILLING CODE 7600-01-M

7

PACIFIC NORTHWEST ELECTRIC POWER AND CONSERVATION PLANNING COUNCIL

STATUS: Open.

TIME AND DATE: December 18-19, 1985, 9:00 a.m.

PLACE: Council Office, 850 SW. Broadway, Suite 1100, Portland, Oregon.

MATTERS TO BE CONSIDERED:

1. Council Deliberation on Draft Power Plan. The Council may complete preliminary action on the draft power plan at its December 11-12 meeting. If so, the Council would cancel the December 18-19 meeting. Please call the central office for a status report on this meeting.
   a. Any other issue not resolved at prior meetings.
2. Council Business.
3. Public Comment. The record on the draft plan closed October 25, 1985; therefore, no public comment can be taken on this subject at this meeting.

FOR FURTHER INFORMATION CONTACT: Ms. Ruth Curtis (Power Plan issues only) or Ms. Bess Atkins (all other issues) at (503) 222-5161.

Edward Sheets,

Executive Director.

[FR Doc. 85-29437 Filed 12-9-85; 10:39 am]

BILLING CODE 0000-00-M

8

POSTAL RATE COMMISSION

TIME AND DATE: Periodic meetings between December 13 through 20, 1985.

PLACE: 1333 H Street, NW., Suite 300, Washington, DC.

STATUS: Closed.

MATTERS TO BE CONSIDERED: United Parcel Service's Motion that USPS' Request Not be Considered Under Experimental Procedures—(Docket No. MC86-1).

CONTACT PERSON FOR MORE INFORMATION: Charles L. Clapp, Secretary, Postal Rate Commission, Room 300, 1333 H Street, NW., Washington, DC 20268-0001, Telephone (202) 789-6840.

Charles L. Clapp,

Secretary.

[FR Doc. 85-29434 Filed 12-9-85; 10:39 am]

BILLING CODE 7715-01-M

9

POSTAL RATE COMMISSION

TIME AND DATE: Periodic meetings between December 12 through 24, 1985.

PLACE: 1333 H Street, NW., Suite 300, Washington, DC.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Discussion of issues and recommended decision regarding Advo System, Inc.—Docket No. C85-1.

CONTACT PERSON FOR MORE INFORMATION: Charles L. Clapp, Secretary, Postal Rate Commission, Room 300, 1333 H Street, NW., Washington, DC 20268-0001, Telephone (202) 789-6840.

Charles L. Clapp,

Secretary.

[FR Doc. 85-29435 Filed 12-9-85; 10:39 am]

BILLING CODE 7715-01-M

10

SECURITIES AND EXCHANGE COMMISSION

"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT: 50 FR 43323 October 24, 1985.

STATUS: Open meeting.

PLACE: 450 Fifth Street, NW., Washington, DC.

DATE PREVIOUSLY ANNOUNCED: Tuesday, November 26, 1985.

CHANGE IN THE MEETING: Deletion.

The following item was not considered at an open meeting scheduled for Tuesday, December 3, 1985, at 10:00 a.m.

Consideration of whether to issue an order granting the application of Maui/Waikiki Hotel Associates, LaSalle/Market Streets Associates, and VMS National Properties for exemption from Sections 12(g), 13(a) and 14 of the Securities Exchange Act of 1934, as amended. For further information, please contact William E. Toomey at (202) 272-2573.

Commissioner Grundfest, as duty officer, determined that Commission business required the above change and that no earlier notice thereof was possible.

At times changes in Commission priorities require alterations in the scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact: Douglas Michael at (202) 272-2467.

John Wheeler,

Secretary.

December 4, 1985.

[FR Doc. 85-29463 Filed 12-9-85; 12:45 pm]

BILLING CODE 8010-01-M

Federal Register

Wednesday
December 11, 1985

Part II

Department of Health and Human Services

Public Health Service

42 CFR Part 75

Standards for the Accreditation of Educational Programs for, and the Credentialing of Radiologic Personnel; Final Rule

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

42 CFR Part 75

Standards for the Accreditation of Educational Programs for and the Credentialing of Radiologic Personnel

AGENCY: Public Health Service, HHS.

ACTION: Final rulemaking.

SUMMARY: These regulations establish standards for the accreditation of educational programs for radiologic personnel, and for the credentialing of such persons. These standards are part of the implementation of the Consumer-Patient Radiation Health and Safety Act of 1981 (Title IX of Pub. L. 97–35), which required their promulgation by regulation. The standards are voluntary for States and mandatory for Federal agencies.

EFFECTIVE DATE: These regulations are effective January 13, 1986.

FOR FURTHER INFORMATION CONTACT: Dr. William S. Brooks, Health Personnel Standards Branch, Division of Associated and Dental Health Professions, Bureau of Health Professions, Health Resources and Services Administration, 5600 Fishers Lane, Room 8–95, Rockville, Maryland 20857; telephone: 301 443–6757.

SUPPLEMENTARY INFORMATION: The Consumer-Patient Radiation Health and Safety Act of 1981 (the Act) is Subtitle I of Title IX of the Omnibus Budget Reconciliation Act of 1981, Pub. L. 97–35. In accordance with section 979 of the Act, the Secretary of Health and Human Services is adding a new Part 75 to Title 42 of the *Code of Federal Regulations*, entitled "Standards for the Accreditation of Educational Programs for and the Credentialing of Radiologic Personnel."

The Department published in the **Federal Register** on July 12, 1983, a Notice of Proposed Rule-Making (NPRM) that provided for a 120-day public comment period.

One of the expressed purposes of the Act is to "insure that . . . radiologic procedures are consistent with rigorous safety precautions and standards." Section 977(2). The comments submitted revealed that attempts to use radiologic personnel standards to improve patient safety are exceedingly complex. In addition, the Act requires that the standards be mandatory for Federal agencies employing radiologic personnel. Comments received from the Federal agencies indicated that current standards for radiologic personnel are adequate to insure the safety of patients and that the proposed standards would create a number of operational problems in areas other than safety. Thus, those most directly affected by the promulgations of such standards felt them to be unnecessary and costly.

Many of the States already have licensing standards for radiologic personnel. The States are also aware of the recommendations of the organizations representing radiologic personnel concerning minimum standards for training and accreditation of educational programs in this area. Thus, many commentators suggested that one of the primary goals of the Act, which is to encourage the States to adopt educational and accreditation standards (see sections 981 (c) and (d)), was unnecessary.

Other commentors pointed out that since the time that the Act was introduced in the Congress, changes in technology and in the Federal regulation of radiologic devices themselves have reduced the risk of unnecessary exposure substantially.

Most fundamentally, both the comments and the Department's own review raised serious questions about whether such standards have more than a remote connection to patient safety. At best, formal education is far removed from actual practice in a work setting. No studies exist which show even a tenuous connection between accreditation status of an institution and the safety-related performance of its graduates. Moreover, there are demonstrably effective alternatives, such as improved design and operation of radiological equipment, and short-term training in techniques of reducing unnecessary intensive exposure. As the American Hospital Association, in its comments on the NPRM, stated: "The means used to address this goal—standards for the accreditation of educational programs for and credentialing of radiologic personnel—are at best an indirect way to approach the problem. There is no demonstrable link between certification on the one hand, and the quality and safety of patient services on the other. And if the link between credentialing and patient safety is weak, the link between an educational accreditation program and patient safety is weaker still."

Therefore, the Department decided to seek repeal of the Act, and transmitted to the Congress in July 1985, the Health Professions Amendments of 1985 which, among other things, would have repealed the Act. In October, the Congress enacted many of the provisions of these proposed Amendments, but did not act on the Department's request to repeal the Act. Thus, given the statutory mandate, the Department has decided to issue the final rule now and will consider again requesting repeal of the Act in the near future.

Section 979 of the Act requires the Secretary, after consultation with appropriate Federal agencies, agencies of States, and professional organizations, to promulgate regulations setting forth minimum standards for the accreditation of educational programs to train individuals to perform radiologic procedures, and minimum standards for the certification"[1] of persons who administer such procedures. These standards are required to distinguish between the occupations of (1) radiographer,[2] (2) dental auxiliaries (including dental hygienists and dental assistants), (3) radiation therapy technologist, and (4) nuclear medicine technologist. The Secretary is also authorized to promulgate standards for other occupational groups utilizing ionizing and non-ionizing radiation as the Secretary finds appropriate. However, the regulations promulgated herein are limited to the occupational groups listed above, utilizing ionizing radiation. At this time, the biological hazards of non-ionizing radiation have not been established as a threat to patient health and safety.

These regulations establish minimum standards for accreditation of educational programs for selected radiologic personnel and standards for credentialing selected radiologic personnel, as required by the Act. The standards apply to non-Federal personnel only to the extent to which States adopt them. Licensed practitioners (doctors of medicine, osteopathy, dentistry, podiatry, and chiropractic) are specifically excluded from coverage by the Act. In addition, the Department has also chosen to exclude licensed pharmacists.

Compliance by the States with the standards is voluntary. However, the Secretary is required by section 981(d) of the Act to monitor the States' "compliance" and to report to the Congress on January 1 of each year the status of that compliance.

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[1] Although the Act uses the term "certification", the term "credentialing" is used in these standards, because certification generally refers to voluntary regulation of personnel or protection of an occupational title, rather than to state regulation of practice as is the intent of these standards.

[2] The statute uses the language "medical radiologic technologists (including radiographers)." For purposes of this regulation, "radiographer" is used as the more generally accepted designation of this occupation.

The standards are intended to assist those States which desire to regulate the education and practice of radiologic personnel. While the standards were developed by the Department, the Act preserves the traditional prerogatives of States in the approval of educational programs and in regulation of personnel. States remain free to utilize approval processes already established by existing voluntary accrediting agencies and examining boards, or to establish their own processes, or to take no action of any kind. While providing a particular basis for action by States, the Act does not require such action.

The Act requires that each department, agency, and instrumentality of the Executive Branch of the Federal Government must comply with the standards promulgated, except that the Veterans Administration (VA) is required to issue its own regulations that, to the maximum extent feasible, make the standards set forth in this regulation applicable to VA facilities. The Administrator of theVA must report to the appropriate committees of Congress on compliance with the requirement not more than 180 days after final promulgation of these regulations. (See section 983 of the Act.) Neither the Act nor these standards impose upon Federal agencies any specific policies or procedures to follow in the implementation of standards in the Federal work force.

The Act requires that the standards be developed in consultation with appropriate Federal agencies, including the VA and the Environmental Protection Agency. To carry out this requirement, a Federal working group was formed consisting of official representatives of agencies that employ these personnel.

Agencies of States, including licensing agencies, boards that regulate health occupations, health departments, and radiation control agencies, provided information and advice. In addition, appropriate professional organizations, voluntary accrediting and certifying agencies in the affected occupations, and employers thereof were also consulted.

The Department chose to promulgate two separate sets of standards for credentialing, each of which identifies five basic elements and provides for maximum flexibility to States. One set of standards is provided for radiographers, nuclear medicine technologists, and radiation therapy technologists. Another set of standards is provided for dental hygienists and dental assistants, which applies only to their performance of dental radiographic procedures. Each standard addresses the issuance of licenses, eligibility, the use of criterion-referenced examinations, continuing competency, and policies and procedures. For the professions named in the Act, there are several private-sector certifying organizations and a number of State licensure statutes, which vary considerably.

All of the standards for the accreditation of educational programs contain material only distantly related, if at all, to patient safety. For example, all include generic responsibilities for planning, managing, and evaluating the educational program offered. Such standards do not relate to training in radiologic procedures, *per se*, but may promote the overall quality of the educational experience. Many such generic standards are included, because they have been accepted by voluntary (nongovernmental) agencies with considerable experience in accrediting educational programs in these fields. However, many other standards have been eliminated.

The Department chose to promulgate accreditation standards that follow the requirements of the voluntary accrediting agencies for educational programs in these professions, e.g., the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association and the Commission on Dental Accreditation (the Commission) of the American Dental Association. However, some of these voluntary standards and all explanatory material issued by these agencies have been eliminated to allow maximum discretion to States. The Department made this decision because (1) the Congress intended that the standards be developed in consultation with appropriate professional organizations, (2) the standards already promulgated are arguably appropriate—insofar as any such standards can be—to promote the type of competency in radiologic procedure safety and patient protection intended by the Act, and (3) the development of standards that differed from those already utilized in these professions would cause unnecessary confusion. In developing standards based on those already promulgated by recognized, private-sector accrediting bodies, certain inconsistencies appear in the format and content of the separate standards for radiographers, radiation therapy technologies, nuclear medicine technologists, dental hygienists, and dental assistants. The Department believes that these inconsistencies do not materially affect the separate standards or impose greater burdens on any profession.

The decision to rely on standards developed by the professions themselves as a starting point created another problem. Many academic economists and several Federal agencies, including the Antitrust Division of the Department of Justice and the Federal Trade Commission (FTC), have raised over the years serious questions concerning the possible anticompetitive effects of certain aspects of State licensure laws which rely on such standards.

The anticompetitive effects are partly related to the structure of the State regulatory body. Licensing boards composed solely of, or dominated by, licensed members of the occupation or profession being regulated may provide a vehicle for raising barriers to entry into these professions. When entry barriers are increased, wage costs and prices to the public increase also. Such barriers are often increased by raising the educational requirements for entry on restricting the number of institutions accredited to train future entrants. Thus, control over the accreditation process by licensed members of the profession is also an important element in attempts to limit entry.

To lessen the potential for these problems, the Department recommends that those States which decide there is a need to establish regulatory controls over radiologic personnel avoid establishing licensing boards dominated by practicing members of these occupations. Caution should also be taken by States to review accreditation policies, especially if influenced by members of the radiologic occupations, to insure that they are not unduly restrictive. In reviewing and modifying the standards promulgated by this rule we have attempted to avoid such problems—for example, by eliminating requirements that only not-for-profit institutions can perform training—but States should avoid adding requirements in the future which erect entry barriers or reduce employment opportunities.

Comments and the Department's Responses

The Department published in the **Federal Register** on July 12, 1983, a Notice of Proposed Rulemaking (NPRM) that provided for a 120-day public comment period. A total of 286 comments from organizations, governmental agencies, and individuals was received.

The presentation of these comments and of the Department's responses is divided into three sections. The first consists of comments regarding the Supplementary Information section of

the July 12 NPRM. The second consists of comments on the rule—the new 75 Part which will be added to Title 42 of the Code of Federal Regulations. The third consists of comments on the Appendixes to the NPRM, which contained the text of the standards.

I. Supplementary Information Section

Two respondents recommended changes in the rationale for not providing standards for users of non-ionizing radiation. The language in the NPRM reads, "at this time, the biological effects of non-ionizing radiation have not been conclusively established as a threat to patient health and safety." These respondents proposed changing the word "effects" to "hazards" and deleting the word "conclusively." The Department agrees.

Twelve respondents recommended that a grandfathering clause be added to the regulation. Grandfathering provisions proposed by these individuals ranged from provision of a grace period in which personnel could obtain the necessary education or credential, to grandfathering on the basis of prior work experience. Traditionally, grandfathering provisions have been included in State statutes for personnel licensure rather than in actual standards adopted under such statutes. Therefore, the model statute being developed by the Department will contain a recommendation on this topic. However, because this regulation is mandatory for Federal agencies, a grandfathering provision for Federal employees has been added as § 75.3(a)(6) of the regulation.

Several respondents questioned the applicability of these standards to active duty military personnel. One of these respondents argued that the standards do not apply because such personnel are not members of the five regulated occupations. Another argued that it would be all but impossible to comply with these standards if they were to apply, since neither military training nor length of service corresponds in any way to the periods of time involved in standards designed for multi-year career training by civilian educational institutions. We agree, and have added a clause to § 75.3(a)(6) under which uniformed personnel trained by the Armed Services will be deemed to have met these standards, provided that equivalent safety protection is otherwise provided. This clause, however, does not apply to civilian employees of the uniformed services.

Other commenters requested that foreign nationals employed by Federal agencies in position outside the United States be exempted from the standards. In response to those comments, and in the absence of any indication of a Congressional intention to impose an American accreditation and licensure model abroad, we have added a provision to the effect that such foreign nationals will be deemed to have met the requirements of the standards if, in the judgment of the employing agency, they present qualifications that are equally protective of patient health and safety.

Finally, a respondent pointed out that application of the standards would bar from Federal employment applicants who are fully qualified by training and experience but who happen to reside in States which choose—as the law permits them to do—not to adopt the standards. At the very least, it will be some years before the standards are widely established by the States. In order to avoid the consequent severe hampering of Federal civilian recruitment, we have also added to § 75.3(a)(6) a provision under which the Office of Personnel Management or the hiring agency may determine that an applicant who has been trained or has practiced in a profession in a State that has not adopted the standards for the profession shows evidence of training, experience and competence that are equally protective of patient health and safety.

In addition, to afford sufficient flexibility to deal with any other potential problems that Federal agencies might encounter, a provision has been added to allow a Federal agency to develop and use alternative criteria that it determines, after consultation with the Secretary, to offer equivalent protection of patient health and safety.

The preamble to the NPRM asked for comments as to whether the credentialing standards should be revised to identify specific eligibility requirements and examination content. One respondent stated that it would be inappropriate to expand the two licensure standards in this way, since this would severely limit the autonomy of the States in developing licensure programs. The Department agrees.

In the NPRM, the Department encourages comments on its decision to follow the existing, private-sector accreditation standards and on whether the NPRM should be revised to reduce inconsistencies. Many respondents addressed the appendixes to the NPRM. The Department has acknowledged and responded to these comments in Section III below, dealing with the individual appendixes. Many of these comments argued for more detail and others for less detail, mostly with respect to particular occupations. Responses to these comments reflected the Department's original problem of dealing with standards which had been independently developed and which treated identical topics inconsistently, with no occupation-specific reason for so doing (e.g., on topics such as student record-keeping and general quality and quantity of staff offices and classrooms). Further, if one occupation's standard (or lack thereof) was viewed as minimally necessary, then others which exceeded it must by definition exceed the minimum (the Act allows promulgation only of "minimum" standards). Yet making a change either way to reduce inconsistencies would depart from the voluntary standards. Faced with such dilemmas, the Department has in general chosen to eliminate rather than add details except, of course, for those particular standards which directly relate to safety training.

In the NPRM, comments were solicited regarding the potential costs and effectiveness of implementing the standards. Eight of thirteen respondents stated that costs would increase as a result of these standards, while two commented that there would be no significant increase in costs. One respondent suggested that any costs resulting from these standards could be offset by a testing and/or licensure fee. In addition, two respondents indicated that the implementation of these standards would be cost effective. While the Department agrees that standards might raise costs, the standards and any costs they entail are mandatory only for Federal agencies. States are free to decide whether or not to adopt regulatory controls and at what level. Changes that we have made in this final rule, and the provision for alternative criteria, are intended to permit flexibility and cost-saving alternatives (provided, of course, that patient safety is equally well-protected), and avoid any serious and inadvertent compliance difficulties for Federal agencies. States which follow this model closely, including relevant applicability exemptions, should also avoid difficulties.

One respondent believed that both the accreditation and licensure standards should contain provisions for periodic Federal review and revision in order to ensure that they remain current. The Department recognizes that radiologic personnel must keep up with a rapidly developing scientific and technical knowledge base. However, both employers and employees have a strong incentive to ensure that radiological personnel maintain and increase their knowledge of safety-related matters.

Moreover, we expect that voluntary associations and possibly States will revise standards from time to time, and will find this easy to do given the flexibility of these standards. In the unlikely event that these standards prove incompatible with such changes, we can under the Act elect to propose revisions, with or without an explicit updating procedure. In the model statute separately transmitted to States, we have explicitly incorporated legal authority to change standards over time.

II. Part 75

Section 75.1(a)

Thirteen respondents questioned the purpose of the regulations, stating that they are unnecessary or that private-sector initiatives are sufficient to regulate radiologic personnel, particularly since the Department has modeled these standards on those of private organizations. It was also argued that the regulation would make recruitment of qualified personnel unnecessarily difficult. With respect to the first argument, we agree, but as previously discussed have little or no choice under the Act. With respect to the second argument, changes discussed above should eliminate the recruitment problem. Therefore, the Department believes that a wider application of standards, essentially similar to those already utilized in a significant part of the health care system, will not create substantial new difficulties in personnel recruitment.

Section 75.1(b)

The Department proposed standards for five occupations that utilize ionizing radiation: (1) Radiographer, (2) dental hygienist, (3) dental assistant, (4) nuclear medicine technologist, and (5) radiation therapy technologist. One hundred ninety-four respondents questioned why the standards were limited to these five occupations. The Department continues to affirm its belief that it is not appropriate at this time to recommend radiologic standards for other types of health personnel who administer ionizing radiation. A fuller and more satisfactory base of information is required on existing practice, standards in the private sector, and job-knowledge requirements, particularly for those personnel who have not previously been held to rigorously developed formal standards regarding their qualifications and competency. Moreover, many occupational groups (e.g., registered nurses) predominantly perform non-radiological procedures and are already subject to a wide range of standards. It would be both extremely difficult and unwise to attempt to create separate standards and duplicative processes limited to radiological competency. More fundamentally, the very concepts of accreditation and licensing only apply to well-defined occupational settings in which both training and job performance are tightly linked to the subject of the standards. For persons who performs radiological procedures in actual job settings rather than on the basis of nominal profession, there are better and more direct approaches such as short-term training and performance testing. Accordingly, coverage has not been extended to other occupations, although individual States have the prerogative to do so.

Nine respondents supported the Department's initial decision to not promulgate standards for personnel in ultrasound and diagnostic medical sonography.

Section 75.2

One respondent suggested that the definition of accreditation be expanded to include the approval of individual courses. The purpose of this regulation is not to set standards for individual courses, but to set standards for educational programs that will in many cases include a considerable variety of academic and clinical training.

One respondent suggested that the term "certification" be defined in § 75.2. As explained in footnote 1 above, the term "certification" is not used in the regulation. Accordingly, no such definition is necessary.

Two respondents felt that the definition of "continuing competency" was too narrow. The Department agrees and has expanded this definition.

Four respondents suggested that the definition of "energized laboratory" be changed to include laboratories in which the equipment emits non-ionizing radiation. Since this regulation applies only to five occupations that utilize ionizing radiation, this change has not been made.

Two respondents suggested that a more complete definition of "ionizing radiation" would include neutrons and other nuclear particles. The Department agrees and has adopted this definition.

In the NPRM, the Department proposed to apply nuclear medicine technologist standards only to technologists who perform *in vivo* procedures, since *in vitro* procedures do not pose the threat of excess radiation to patients. A second rationale for this decision was based on the Department's concern that standards for the nuclear medicine technologists should not be applied to other laboratory personnel who can perform *in vitro* procedures. Seventeen respondents objected to a lack of clarity in this definition or to the application of the standards. It was also suggested that a clearer statement on *in vivo* procedures would be necessary. The Department recognizes that *in vivo* and *in vitro* procedures fall within the scope of the nuclear medicine technology profession, but remains concerned about application of technologist standards to other personnel. Accordingly, the original statement on applicability has been retained but clarified by adding the following statement: "For purposes of this Act, any administration of radiopharmaceuticals to human beings is considered an *in vivo* procedure." In addition, to the extent that *in vitro* procedures present a potential hazard to technologists or other laboratory personnel, health and safety rules should be established in the laboratory for their protection. Such provisions, however, are beyond the scope of this regulation. The Department suggests that States examine these issues carefully in proposing licensure standards for these personnel.

Five respondents suggested other changes that would amend the definition of "nuclear medicine technologist." A suggestion to insert the phrase "administers radiopharmaceuticals to human beings" has been adopted. A suggestion to delete the reference to licensed pharmacists has also been adopted. However, the Department has chosen to exempt pharmacists from the regulation because it does not wish to impose requirements on pharmacists or their educational programs beyond those required by State licensure statutes or State-approved program accreditation. The suggestion to insert the phrase "while under the supervision of a licensed practitioner" has merit, but more properly should be contained in the State licensure statute that defines the scope of practice for nuclear medicine technologists. One respondent suggested the insertion of the phrase "represents himself or herself to the public as a nuclear medicine technologist." The Department agrees that nuclear medicine technologists are not the only professionals that perform the procedures in question and that medical technologists, clinical chemists, and others that perform *in vitro* procedures are not covered by these regulations. However, the Department feels that the definition, as written, clearly delineates who is and is not covered by this regulation.

Four respondents stated that the term "radiographer" normally denotes an

industrial radiographer who X-rays materials, and recommended substituting "radiographic technologist," "medical radiologic technologist," or "medical radiographer." The Department disagrees. Since "radiographer" is the accepted occupational title for these personnel in health care settings and is less confusing than "medical radiologic technologist," which can be applied to more than one of these professions, the term "radiographer" has been retained.

One Federal agency expressed concern that under emergency or combat conditions, persons not meeting licensure requirements may have to perform the duties of radiographers. It is recognized that under such conditions the substitution of lesser qualified personnel is preferable to doing without necessary diagnostic information obtainable by radiologic procedures. These standards do not attempt to address the use of personnel in emergency conditions, which are sufficiently rare so as not to affect the medical radiation hazards to which the general population is routinely subjected. However, to clarify this point we have created in § 75.3 a specific exemption to cover this case.

One respondent wrote that the note to the definition of "radiographer" should be deleted or a similar note added for "nuclear medicine" and "radiation therapy technologists." Another respondent requested that the note be incorporated into the definition of "radiographer", stating that this would eliminate the need for the "Description of the Profession" in the accreditation standards. The Department has incorporated the note into the definition, but has retained the Description of the Profession in Appendix A to indicate the competencies for which radiographers should be trained.

One respondent suggested that the definition of "radiologist" be amended to include physicians certified by the American Board of Chiropractic Radiology. Since the term "radiologist" is used only to refer to the qualifications of the medical director of an approved educational program, who may either be a radiologist or possess "suitable equivalent qualifications," the change is unnecessary.

Section 75.3

One respondent felt that military X-ray technologists should be included in the Federal requirements. The Act specifically requires all Federal agencies to comply with the standards for all employees, including military personnel, except that the VA must comply "to the extent feasible" and issue its own regulations.

III. Comments on Appendixes

Appendix A

One respondent stated that the accreditation standards for radiographers are excessively detailed, and one stated they are insufficiently detailed to protect patient health and safety. The Department believes that the accreditation standards are adequate and the level of detail of the standards has been retained.

One respondent stated that the Description of the Profession for radiographers was unclear and suggested using the American College of Radiology's wording concerning imaging techniques. The description of the profession is similar to that presently used by CAHEA, which was adopted by the College. The Department believes that this description is adequate.

One respondent suggested that a course in computer science be added to the curriculum for all radiographers. Although the Department has not made this addition to the minimum curriculum, it acknowledges that accrediting bodies may wish to do so in the future.

Two respondents commented on faculty requirements. One recommended that the criteria for instructors be more specific and detailed. The other requested that specific credentials be stated for faculty. The Department believes that within the standards as published in the NPRM, any more specific qualifications or credentials should be determined by institutions providing the educational program.

One respondent pointed out that recordkeeping requirements for radiographers were much more detailed than for nuclear medicine technologists or radiation therapy technologists. The three have been made consistent.

As was suggested by one respondent, the sponsorship section has been revised to be consistent with the other appendixes.

In other regulations, the Department has consistently eliminated the requirements for full-time program directors. In order to provide maximum flexibility to States, this policy has also been incorporated in Appendix A and E of this regulation.

Appendix B

Three respondents stated that Appendixes B and C could, in most instances, be combined, and two supported the Appendixes as proposed. Curriculum standards for dental radiography training are virtually the same for dental hygienists (Appendix B) and dental assistants (Appendix C). However, the Act requires the Department's standards to distinguish between these occupations.

One respondent suggested that the words "course and program" be added to the term "dental radiography training" wherever used in Appendixes B and C. Because dental radiography training encompasses both courses and programs, as described in the sponsorship sections of Appendixes B and C, no change has been made.

Relating to sponsorship, one respondent suggested that A. use the language of the Commission on Dental Accreditation. The Commission's Standard 1, regarding educational settings, is directed toward the accreditation of a total dental hygiene education program, while the Department's standard is directed only toward dental radiography training. Since the Department intends only to propose accreditation standards for training in dental radiography, it has retained the NPRM language.

Another respondent suggested that A.1.(b) (currently A.2.) specify the Commission as the accrediting organization recognized by the U.S. Department of Education. The Department does not believe that identification of accrediting bodies will materially affect the standards and has retained the original language.

One respondent suggested that A.1.(c) (currently A.3.) specify State dental boards as the State entity responsible for approving sponsors of and training in dental radiography. States have the authority to designate the entity that sets requirements for personnel who expose and process dental radiographs. This is often, but not always, the dental board. Therefore, the original language of the standard has been retained.

Three respondents expressed concern over curriculum content, learning experiences, and institutional time, and suggested that these may pose enforcement problems for accrediting agencies. After reviewing the relevant Commission requirements and guidelines, the Department continues to believe that the provisions of this rule are consistent with voluntary sector standards, which do not appear to pose enforcement problems.

Two respondents questioned the use of the term "direct supervision" in B.1.(c) (currently B.3.). It is the intent of this standard to assure appropriate faculty supervision during a student's radiographic technique and practice assignments, but not to impose a direct and constant supervision requirement after a student has demonstrated

competence in making radiographs. Therefore, the standard has been modified.

Another respondent suggested amending B.1.(c) (currently B.3.) to state, "experiences should include primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients." This language more completely describes possible radiographic opportunities, and the Department has adopted this suggestion. This would create a problem for the Armed Forces, as discussed by another respondent, since some uniformed personnel are not allowed to practice on children and such training would therefore be redundant. The exemption previously discussed would solve this problem.

Two respondents recommended deleting "Certified Dental Assistant" as a qualifying credential for dental radiography faculty. Another respondent suggested that dental hygiene faculty be licensed to teach these procedures, and one proposed that dental radiography faculty be required to demonstrate special training and experience. D.1.(a) (currently D.1.) is a list of minimum qualifications for individuals who teach dental radiography. The language of this section is similar to the faculty standard of the Commission's standards for dental hygiene education programs. The Department believes in maintaining flexibility for educational institutions regarding faculty requirements and has chosen to retain the original language of the NPRM.

Appendix C

One respondent objected that section A excludes high school dental assisting programs that otherwise meet these standards. The Department agrees and has modified this standard to include secondary educational programs.

Two respondents suggested that only programs accredited by the Commission on Dental Accreditation should be approved sponsors. The Commission accredits dental assisting education programs but does not accredit individual courses. To limit radiography training to courses conducted by Commission-accredited programs would eliminate many sponsors who are providing recognized and acceptable courses in dental radiography. Accordingly, the original language has been retained.

One respondent suggested that reference to Federal agencies be deleted from A.1.(c) (currently A.3.). The Department has deleted this language, since it is unnecessary and is inconsistent with the standards for other occupations.

Four respondents expressed concern about the level of detail in the curriculum content standards and a need to specify instructional time. In developing this standard, the Department has followed voluntary-sector standards concerning curriculum content, learning experiences, and instructional time, and believes these standards adequate. As with Appendix B, respondents also objected to use of the term "direct supervision." The Department agrees and has modified this provision.

One respondent recommended that dental assistants should in all cases be required to demonstrate competence on manikins before making radiographs on patients. The Department acknowledges the advantages of practice on manikins, but recognizes that such a requirement would greatly restrict learning opportunities in dental radiography for on-the-job-trained dental assistants, whose training needs are greatest. Appropriate instruction and supervision, as set forth in these standards, can make a radiogaphic exposure for diagnostic purposes into a safe learning and practice experience.

One respondent indicated that not all training facilities have children in their patient pools. The Department agrees but notes that the standard recommends that clinical experience "should" provide such opportunities. Accordingly, training facilities should make an effort to meet the intent of the standards, but may not be able to do so in all cases. As in Appendix B, this standard was also modified to include primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

Three respondents stated that dental radiography faculty should be required to demonstrate special training and experience, that the Certified Dental Assistant credential is not a sufficient qualification, and that the provision for recognition of equivalent qualifications in D.1.(a) (currently D.1.) is ambiguous. D.1.(a) (currently D.1.) is a list of minimum qualifications for individuals who teach dental radiography. This standard is similar to the faculty standard found in the Commission's standards for dental assisting education programs. The Department believes in maintaining flexibility for educational institutions regarding faculty requirements and has chosen to retain this language.

One respondent requested that the note at the end of the standard specify the Commission as the accrediting body recognized by the U.S. Department of Education. As described previously, the Department has chosen not to name such organizations in these standards.

Appendix D

Two respondents addressed in general terms the standards for accreditation of educational programs for nuclear medicine technologists. One concurred with the effort made to follow the CAHEA's *Essentials and Guidelines*. Another found the wording, although drawn from the *Essentials*, to be vague, incomplete, and imprecise. A third respondent suggested numerous changes in the standards for accreditation of educational programs for nuclear medicine technologists, which would essentially duplicate the proposed new draft voluntary-sector essentials. While the Department supports voluntary-sector standards, it believes that Federal requirements can be less detailed without compromising the quality of educational programs. Therefore, the standards have not been amended.

Two respondents felt that the qualifications for program director were excessively detailed, while another felt they were insufficiently detailed. The Department believes that the qualifications for program director are adequate and the original language has been retained.

One respondent recommended adding a list of recognized educational programs to the note. Since States have the responsibility to approve educational programs, the Department suggests that the States or accrediting bodies recognized by States be consulted for such a list.

Appendix E

Two respondents suggested that the sponsorship standard be less specific, arguing that the critical factor is that programs have good clinical affiliations and strong didactic programs regardless of institutional sponsors. In keeping with the Department's preference to follow private sector standards where appropriate, the current language has been retained.

Two respondents suggested that the curriculum be expanded to include management organization and function, statistics, and computer applications. Although the Department has not added these topics to the minimum curriculum, it recognizes that accrediting bodies may wish to make some such changes in the future.

Another respondent felt that the one-year program option should be eliminated. Since one-year programs currently exist, are accredited, and graduate personnel fully cognizant of patient health and safety considerations.

the Department does not believe that Federal regulations should be more restrictive.

One respondent suggested that in C.4., the standard should require laboratories to meet applicable Federal and State standards. The Department agrees and has made the appropriate change.

To maintain consistency with minimum, voluntary-sector standards, the Department felt that it was necessary to add, "or possess suitable equivalent qualifications" to the program director qualifications.

Appendixes F and G

One State agency opposed the creation of standards that would lead to a licensure law and questioned the need for separate licenses for the five professions covered by this regulation. The Department has recommended minimum standards for each of these distinct occupations, as required by Pub. L. 97-35. As written, the standards for "nuclear medicine technologist", "radiation therapy technologist", and "radiographer" can be incorporated into a State licensure program. "Dental hygienist" is already licensed in all States. For "dental assistant", a permit to engage in dental radiography may be preferable. However, States that elect to implement such standards may choose among a variety of implementation strategies.

Five respondents dealt with the continuing competency requirement in Appendixes F and G. They questioned its specificity, cost-effectiveness, and feasibility of enforcement. The Department believes that licensure without a requirement for maintaining competency does not serve to protect the public. However, the state of the art in assuring continued competency is such that specific guidelines cannot be presented at this time. States that choose to set a continuing competency requirement should develop an oversight or enforcement mechanism.

The NPRM mentioned the National Commission for Health Certifying Agencies (NCHCA) as having published suitable criteria for certifying organizations. Three respondents objected to mention of the NCHCA. One suggested that a list of criteria would be acceptable. Twelve respondents supported the reference to the NCHCA's criteria and in most cases requested additional information. The Department believes that States can look to NCHCA for an acceptable method of evaluating certifying practices, but does not see the need to incorporate lengthy additional material that is readily available.

One respondent suggested that the adoption of criteria such as those of NCHCA is less significant than adherence to such criteria. The Department agrees. This respondent also suggests that States be required to develop processes that will ensure that accrediting organizations adhere to such criteria. The Department considers this overly prescriptive in a Federal standard and believes that the present wording of this section provides sufficient guidance to States on matters of validity, objectivity, and fairness in establishing standards.

Two respondents requested that language be added to require that examinations be currently reliable and valid. The Department believes that reliability and validity issues are adequately covered in the section on policies and procedures.

Two respondents requested addition of the following statement, "a State agency may, in lieu of its own examination, recognize successful completion of a national credentialing examination." It is not the intent of the Department to specify, within these regulations, the procedures by which States may or may not implement these standards. The standards allow either approach. Therefore, the statement has not been adopted.

Three respondents objected to the special eligibility clause in Appendixes F and G (B.2.), feeling that the standard should require all applicants to be graduates of accredited programs. The Department believes that States should develop procedures to permit applicants who have training and/or experience equal to or greater than graduates of accredited programs to take the licensure examination. Only dental hygiene has no special eligibility clause, since all States license hygienists and require graduation from an accredited program. Therefore, the original language has been retained.

Two respondents endorsed the use of the term "competency-based examination" rather than "criterion-referenced examination" in Appendix F, believing it to be more comprehensive. Another respondent suggested expanding the wording to include "and functional capability." However, the term "criterion-referenced examination" is widely accepted, understood, and used in the credentialing community, and the Department feels that the proposed change would not serve to clarify the standard.

Appendix G

One respondent suggested that Federal entities could also issue licenses or permits. Currently, some Federal agencies that train dental personnel provide a certificate of completion of the program, but none take the next step of credentialing the individual. Although this step may be considered by Federal agencies in the future, credentialing is basically a State function (licensing) or private sector function (certification). The Department, therefore, has retained the original language.

One respondent suggested combining B.1. and B.2., which specify eligibility requirements. The Department believes that the present organization of the standard more clearly shows the requirements of each pathway to eligibility, i.e., formal education and combination of training and/or experience.

Two respondents suggested an eligibility requirement of high school graduation or the equivalent for dental assistants. Since the standards specify in some detail the education and training required to be eligible for a permit, an additional requirement does not appear necessary. States may establish such a requirement as they determine necessary.

Four respondents made recommendations relative to examinations. One respondent encouraged the use of the Dental Assisting National Board examination; two stated that a clinical examination is necessary to assure competence; and the other suggested that examination content areas be specified. The standard, as revised, allows States maximum flexibility in selecting the type of examination necessary to determine competence, including a clinical examination.

Regulatory Flexibility Act and Executive Order 12291

The Department certifies that these regulations will not have a significant economic impact on a substantial number of small entities, including small businesses, small organizational units, and small governmental jurisdictions and, therefore, does not require a regulatory flexibility analysis under the Regulatory Flexibility Act of 1980.

The Department has also determined that this is not a major rule under the Executive Order 12291, because it will not result in:

(1) An annual effect on the economy of $100 million or more;

(2) A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or

(3) Significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of

United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

While the costs of implementation of these regulations by Federal agencies cannot be calculated in the absence of specific implementation plans, no significant costs are anticipated, and we have sought to minimize or eliminate anticompetitive effects.

Promulgation of these standards will affect private-sector health costs only to the extent that States elect to regulate these personnel when otherwise they would not do so. This effect is probably minimal since State regulation of these personnel has been increasing without a Federal model regulation. Regardless, this regulation does not "result in" such impacts, and we do not believe that significant costs are involved.

List of Subjects in CFR Part 75

Credentialing of radiologic personnel, Federal radiologic personnel, Health personnel standards, Medical radiation, Radiation protection, Radiologic personnel standards, Standards for radiologic personnel.

Dated: November 25, 1985.

James O. Mason,

Assistant Secretary for Health.

Approved: November 26, 1985.

Margaret M. Heckler,

Secretary.

Therefore, Part 75 will be added to Subchapter F of Title 42 of the Code of Federal Regulations as set forth below.

PART 75—STANDARDS FOR THE ACCREDITATION OF EDUCATIONAL PROGRAMS FOR AND THE CREDENTIALING OF RADIOLOGIC PERSONNEL

Sec.

Authority: Sec. 979 of the Consumer-Patient Radiation Health and Safety Act of 1981, Pub. L. 97-35, 95 Stat. 599-600 (42 U.S.C. 10004).

§ 75.1 Background and purpose.

(a) The purpose of these regulations is to implement the provisions of section 979 of the Consumer-Patient Radiation Health and Safety Act of 1981, 42 U.S.C. 10004, which requires the establishment by the Secretary of Health and Human Services of standards for the accreditation of programs for the education of certain persons who administer radiologic procedures and for the credentialing of such persons.

(b) Section 979 requires the Secretary, after consultation with specified Federal agencies, appropriate agencies of States, and appropriate professional organizations, to promulgate by regulation the minimum standards described above. These standards distinguish between the occupations of (1) radiographer, (2) dental hygienist, (3) dental assistant, (4) nuclear medicine technologist, and (5) radiation therapy technologist. In the interest of public safety and to prevent the hazards of improper use of medical radiation identified by Congress in its determination of the need for standards, the Secretary is also authorized to prepare standards for other occupational groups utilizing ionizing and non-ionizing radiation as he/she finds appropriate. However, the standards set out below are limited to the five occupational groups listed above, utilizing ionizing radiation. Nothing in these accreditation standards is intended to discriminate against proprietary schools.

§ 75.2 Definitions.

All terms not defined herein shall have the meaning given them in the Act. As used in this part:

"Accreditation," as applied to an educational program, means recognition, by a State government or by a nongovernmental agency or association, of a specialized program of study as meeting or exceeding certain established qualifications and educational standards. As applied to a health care or educational institution, "accreditation" means recognition, by a State government or by a nongovernmental agency or association, of the institution as meeting or exceeding certain established standards or criteria for that type of institution.

"Act" means the Consumer-Patient Radiation Health and Safety Act of 1981, 42 U.S.C. 10001-10008.

"Continuing competency" means the maintenance of knowledge and skills and/or demonstrated performance that are adequate and relevant to professional practice needs.

"Credentialing" means any process whereby a State Government or nongovernmental agency or association grants recognition to an individual who meets certain predetermined qualifications.

"Dental hygienist" means a person licensed by the State as a dental hygienist.

"Dental assistant" means a person other than a dental hygienist who assists a dentist in the care of patients.

"Educational program" means a set of formally structured activities designed to provide students with the knowledge and skills necessary to enter an occupation, with evaluation of student performance according to predetermined objectives.

"Energized laboratory" means any facility which contains equipment that generates ionizing radiation. This does not include facilities for training students when the equipment is not powered to emit ionizing radiation, e.g., practice in setting controls and positioning of patients.

"Formal training" means training or education, including either didactic or clinical practicum or both, which has a specified objective, planned activities for students, and suitable methods for measuring student attainment, and which is offered, sponsored, or approved by an organization or institution which is able to meet or enforce these criteria.

"Ionizing radiation" means any electromagnetic or particulate radiation (X-rays, gamma rays, alpha and beta particles, high speed electrons, neutrons, and other nuclear particles) which interacts with atoms to produce ion pairs in matter.

"Licensed practitioner" means a licensed doctor of medicine, osteopathy, dentistry, podiatry, or chiropractic.

"Licensure" means the process by which an agency of State government grants permission to persons meeting predetermined qualifications to engage in an occupation.

"Nuclear medicine technologist" means a person other than a licensed practitioner who prepares and administers radio-pharmaceuticals to human beings and conducts *in vivo* or *in vitro* detection and measurement of radioactivity for medical purposes.

"Permit" means an authorization issued by a State for specific tasks or

practices rather than the entire scope of practice in an occupation.

"Radiation therapy technologist" means a person other than a licensed practitioner who utilizes ionizing radiation-generating equipment for therapeutic purposes on human subjects.

"Radiographer" means an individual other than a licensed practitioner who (1) performs, may be called upon to perform, or who is licensed to perform a comprehensive scope of diagnostic radiologic procedures employing equipment which emits ionizing radiation, and (2) is delegated or exercises responsibility for the operation of radiation-generating equipment, the shielding of patient and staff from unnecessary radiation, the appropriate exposure of radiographs, or other procedures which contribute to any significant extent to the site or dosage of ionizing radiation to which a patient is exposed. Radiographers are distinguished from personnel whose use of diagnostic procedures is limited to a few specific body sites and/or standard procedures, from those personnel in other clinical specialties who may occasionally be called upon to assist in diagnostic radiology, and from those technicians or assistants whose activities do not, to any significant degree, determine the site or dosage of radiation to which a patient is exposed.

"Radiologist" means a physician certified in radiology by the American Board of Radiology or the American Osteopathic Board of Radiology.

§ 75.3 Applicability.

(a) *Federal Government.* Except as provided in section 983 of the Act, the credentialing standards set out in the Appendixes to this part apply to those individuals who administer or propose to administer radiologic procedures, in each department, agency and instrumentality of the Federal Government as follows:

(1) "Radiographer Standards" apply to all individuals who are radiographers as defined in § 75.2 and who are not practitioners excepted by the Act.

(2) "Nuclear Medicine Technologist Standards" apply to all individuals who are nuclear medicine technologists as defined in § 75.2, who perform *in vivo* nuclear medicine procedures, and who are not practitioners excepted by the Act. For purposes of this Act, any administration of radiopharmaceuticals to human beings is considered an *in vivo* procedure.

(3) "Radiation Therapy Technologist Standards" apply to all individuals who perform radiation therapy and who are not practitioners excepted by the Act.

(4) "Dental Hygienist Standards" apply to all dental hygienists who perform dental radiography.

(5) "Dental Assistant Standards" apply to all dental assistants who perform dental radiography.

(6) The following persons are deemed to have met the requirements of these standards:

(i) Persons employed by the Federal government as radiologic personnel prior to the effective date of this regulation and who show evidence of current or fully satisfactory performance or certification of such from a licensed practitioner;

(ii) Uniformed military personnel who receive radiologic training from or through the Armed Forces of the United States and who meet standards established by the Department of Defense or components thereof, provided that those standards are determined by such Department or component to offer equivalent protection of patient health and safety;

(iii) Foreign national employed by the Federal government in positions outside of the United States who show evidence of training, experience, and competence determined by the employing agency to be equally protective of patients health and safety; and

(iv) Persons first employed by the Federal government as radiologic personnel after the effective date of this regulation who (*a*) received training from institutions in a State or foreign jurisdiction which did not accredit training in that particular field at the time of graduation, or (*b*) practiced in a State or foreign jurisdiction which did not license that particular field or which did not allow special eligibility to take a licensure examination for those who did not graduate from an accredited educational program; provided that such persons show evidence of training, experience, and competence determined by the Office of Personnel Management or the employing agency to be equally protective of patient health and safety.

(7) The following persons are exempted from these standards:

(i) Persons who are trained to perform, or perform, covered radiologic procedures in emergency situations which preclude use of fully qualified personnel; and

(ii) Students in approved training programs.

(8) A department, agency, or instrumentality of the Federal government may, after consultation with the Secretary, use alternative criteria which it determines would offer equivalent protection of patient health and safety.

(b) *States.* The States may, but are not required to, adopt standards for accreditation and credentialing that are consistent with the standards set out in the Appendixes to this part.

Appendix A.—Standards for Accreditation of Educational Programs for Radiographers

A. Description of the Profession

The radiographer shall perform effectively by:

1. Applying knowledge of the principles of radiation protection for the patient, self, and others.

2. Applying knowledge of anatomy, positioning, and radiographic techniques to accurately demonstrate anatomical structures on a radiograph.

3. Determining exposure factors to achieve optimum radiographic technique with a minimum of radiation exposure to the patient.

4. Examining radiographs for the purpose of evaluating technique, positioning, and other pertinent technical qualities.

5. Exercising discretion and judgment in the performance of medical imaging procedures.

6. Providing patient care essential to radiologic procedures.

7. Recognizing emergency patient conditions and initiating lifesaving first aid.

B. Sponsorship

1. Accreditation will be granted to the institution that assumes primary responsibility for curriculum planning and selection of course content; coordinates classroom teaching and supervised clinical education; appoints faculty to the program; receives and processes applications for admission; and grants the degree or certificate documenting completion of the program.

2. Educational programs may be established in:

(a) Community and junior colleges, senior colleges, and universities;

(b) Hospitals;

(c) Medical schools;

(d) Postsecondary vocational/technical schools and institutions; and

(e) Other acceptable institutions which meet comparable standards.

3. The sponsoring institutions and affiliate(s) must be accredited by a recognized agency. When the sponsoring institution and affilitate(s) are not so recognized, they may be considered as meeting the requirements of accreditation if the institution meets or exceeds established equivalent standards.

C. Instructional Facilities

1. *General.* Appropriate classroom and clinical space, modern equipment, and supplies for supervised education shall be provided.

2. *Laboratory.* Energized laboratories utilized for teaching purposes shall be certified as required for compliance with Federal and/or State radiation safety regulations. The use of laboratories shall be governed by established educational objectives.

3. *Reference Materials.* Adequate up-to-date scientific books, periodicals, and other reference materials related to the curriculum and profession shall be readily accessible to students.

D. Clinical Education

1. The clinical phase of the educational program shall provide an environment for supervised competency-based clinical education and experience and offer a sufficient and well-balanced variety of radiographic examinations and equipment.

2. An acceptable ratio of students to registered technologists shall be maintained in the clinical teaching environment.

3. A clinical instructor(s), who shall be responsible for supervising students according to objectives, shall be identified for each primary clinical education center.

4. The maximum student enrollment shall not exceed the capacity recommended on the basis of volume and variety of radiographic procedures, resources, and personnel available for teaching purposes.

5. In programs where didactic and clinical experience are not provided in the same institution, accreditation shall be given only to the institution responsible for admissions, curriculum, and academic credit. The accredited institution shall be responsible for coordinating the program and assuring that the activities assigned to the students in the clinical setting are educational. There shall be a uniform contract between the accredited institution and each of its affiliate hospitals, clearly defining the responsibilities and obligations of each.

E. Curriculum

1. The structure of the curriculum shall be based on not less than two calendar years of full-time study or its equivalent.

2. Instruction shall follow a planned outline that includes:

(a) The assignment of appropriate instructional materials;

(b) Classroom presentations, discussions and demonstrations; and

(c) Examinations in the didactic and clinical aspects of the program.

3. All professional courses, including clinical education, must include specific curriculum content that shall include, but shall not be limited to:

(a) Introduction to radiologic technology;
(b) Medical ethics;
(c) Imaging;
(d) Radiographic processing technique;
(e) Human structure and function;
(f) Medical terminology;
(g) Principals of radiographic exposure;
(h) Radiographic procedures;
(i) Principles of radiation protection;
(j) Radiographic film evaluation;
(k) Methods of patient care;
(l) Pathology;
(m) Radiologic physics; and
(n) Radiation biology.

Related subjects added to the professional curriculum shall meet the requirements of the degree-granting institution.

F. Finances

Financial resources for operation for the educational program shall be assured through regular budgets, gifts, grants, endowments, or fees.

G. Faculty

1. *Program Director.* A program director shall be designated who is credentialed in radiography. The program director's responsibilities in teaching, administration, and coordination of the educational program in radiography shall not be adversely affected by educationally unrelated functions.

(a) *Minimum qualifications.* A minimum of two years of professional experience and proficiency in instructing, curriculum design, program planning, and counseling.

(b) *Responsibilities.* (1) The program director, in consultation with the medical director/advisor (G. 2.) shall be responsible for the organization, administration, periodic review, records, continued development, and general policy and effectiveness of the program.

(2) Opportunities for continuing education shall be provided for all faculty members.

2. *Medical Director/Medical Advisor*—(a) *minimum qualifications.* The medical director/medical advisor shall be a qualified radiologist, certified by the American Board of Radiology, or shall possess suitable equivalent qualifications.

(b) *Responsibilities.* The medical director/medical advisor shall work in consultation with the program director in developing the goals and objectives of the program and implementing the standards for their achievement.

3. *Instructors.* All instructors shall be qualified through academic preparation and experience to teach the assigned subjects.

H. Students

Admission

(a) Candidates for admission shall satisfy the following minimum requirements: Completion of four years of high school; successful completion of a standard equivalency test; or certification of equivalent education by an organization recognized by the United States Department of Education. Courses in physics, chemistry, biology, algebra, and geometry are strongly recommended.

(b) The number of students enrolled in each class shall be commensurate with the most effective learning and teaching practices and should also be consistent with acceptable student-teacher ratios.

I. Records

Records shall be maintained as dictated by good educational practices.

Note.—Educational programs accredited by an organization recommended by the United States Department of Education are considered to have met these standards.

Appendix B—Standards for Accreditation of Dental Radiography Training for Dental Hygienists

A. Sponsorship

Sponsorship must be by an entity that assumes primary responsibility for the planning and conduct of competency-based didactic and clinical training in dental radiography.

1. This responsibility must include: defining the curriculum in terms of program goals, instructional objectives, learning experiences designed to achieve goals and objectives, and evaluation procedures to assess attainment of goals and objectives; coordinating classroom teaching and supervised clinical experiences; appointing faculty; receiving and processing applications for admission; and granting documents of successful completion of the program.

2. The formal training in dental radiography may be a part of a total program of dental hygiene education accredited by an organization recognized by the United States Department of Education.

3. The sponsoring entity and the dental radiography training must be approved by the State entity responsible for approving dental hygiene education programs or the State entity responsible for credentialing dental personnel in radiography.

B. Curriculum

Dental radiography training for dental hygienists must provide sufficient content and instructional time to assure competent performance.

1. The dental radiography curriculum content and learning experiences must include the theoretical aspects of the subject as well as practical application of techniques. The theoretical aspects should provide content necessary for dental hygienists to understand the critical nature of the radiological procedures they perform and of the judgments they make as related to patient and operator radiation safety.

2. The dental radiography curriculum must include content in seven areas: radiation physics; radiation biology; radiation health, safety, and protection; X-ray films and radiographic film quality; radiographic techniques; darkroom and processing techniques; and film mounting.

—*Radiation Physics.* Curriculum content should include: historical background; role of radiology in modern dentistry; types of radiation; X-ray production principles; operation of X-ray equipment; properties of X-radiation; and X-radiation units, detection and monitoring devices.

—*Radiation Biology.* Curriculum content should include: Interaction of ionizing radiation with cells, tissues, and matter; factors influencing biological response of cells and tissues to ionizing radiation; somatic and genetic effects of radiation exposure; and cumulative effects of X-radiation and latent period.

—*Radiation Health, Safety, and Protection.* Curriculum content should include: Sources and types of radiation exposure; public health implications and public concerns; principles of radiological health including collimation and filtration; radiation protection methods in the dental office; necessity for high diagnostic yield with a reduction of X-radiation exposure; and monitoring devices.

—*X-ray Films and Radiographic Film Quality.* Curriculum content should include: X-radiation production and scatter; X-ray beam quality and quantity; factors influencing radiographic density, contrast,

definition, and distortion; film characteristics; dosage related to film speed; types of films, cassettes, and screens; and film identification systems.

—*Radiographic Techniques.* Curriculum content should include: imagery geometry; patient positioning; film/film holder positioning; cone positioning and exposure settings for the intraoral paralleling technique, bisecting the angle technique, and techniques for occlusal radiographs; extraoral panoramic techniques; and patient variations that affect the above techniques.

—*Darkroom and Processing Techniques.* Curriculum content should include: solution chemistry and quality maintenance; darkroom equipment and safe lighting; film processing techniques; automatic film processing; and processing errors.

—*Film Mounting.* Curriculum content should include: anatomical landmarks essential to mounting films; film mounting procedures; and diagnostic quality of radiographs.

3. The curriculum must also include clinical practice assignments.

—Clinical practice assignments must be an integral part of the curriculum so that Dental Hygienists have the opportunity to develop competence in making radiographs. Faculty supervision must be provided during a student's radiographic technique experience. Students must demonstrate competence in making diagnostically acceptable radiographs prior to their clinical practice where there is not direct supervision by faculty.

—Dental hygienists must demonstrate knowledge of radiation safety measures before making radiographs and, where possible, should demonstrate competence on manikins before making radiographs on patients. Radiographs must be exposed for diagnostic purposes and not solely to demonstrate techniques or obtain experience.

—The clinical experience should provide opportunity to make a variety of radiographs and radiographic surveys including primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

C. Student Evaluation

Evaluation procedures must be developed to assess performance and achievement of dental radiography program objectives.

D. Faculty

The dental radiography training must be conducted by faculty who are qualified in the curriculum subject matter.

1. This may include a D.D.S./D.M.D. degree; graduation from an accredited dental assisting or dental hygiene education program with a certificate or an associate or baccalaureate degree; status as a Certified Dental Assistant certified by the Dental Assisting National Board; or recognition as equivalently qualified by the State entity which approved the training program in dental radiography.

2. The faculty-to-student ratio must be adequate to achieve the stated objectives of the curriculum.

E. Facilities

Adequate radiographic facilities must be available to permit achievement of the dental radiography training objectives. The design, location, and construction of radiographic facilities must provide optimum protection from X-radiation for patients and operators. Equipment shall meet State and Federal laws related to radiation. Monitoring devices shall be worn by dental personnel. Lead aprons must be placed to protect patients. Safe storage for films must be provided. Darkroom facilities and equipment must be available and of a quality that assures that films will not be damaged or lost.

F. Learning Resources

A wide range of printed materials, instructional aids, and equipment must be available to support instruction. Current specialized reference texts should be provided; and models, replicas, slides, and films which depict current techniques should be available for use in instruction. As appropriate self-instructional materials become available, they should be provided for the student's use.

Note.—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards. Under existing licensure provisions in all States, becoming a dental hygienist requires graduation from a dental hygiene education program accredited by an organization recognized by the United States Department of Education. In lieu of this requirement, Alabama accepts graduation from a State-approved preceptorship program.

Appendix C—Standards for Accreditation of Dental Radiography Training for Dental Assistants

A. Sponsorship

Sponsorship must be an entity that assumes primary responsibility for the planning and conduct of competency-based didactic and clinical training in dental radiography.

1. This responsibility must include: Defining the curriculum in terms of program goals, instructional objectives, learning experiences designed to achieve goals and objectives, and evaluation procedures to assess attainment of goals and objectives; coordinating classroom teaching and supervised clinical experiences; appointing faculty; receiving and processing applications for admission; and granting documents of successful completion of the program.

2. Dental radiography training may be freestanding (as a continuing education course offered by State dental/dental auxiliary societies, or by dental/dental auxiliary education programs); or be a part of an educational program in dental assisting. Such dental assisting education programs may be accredited by an organization recognized by the United States Department of Education; or located in a school accredited by an institutional accrediting agency recognized by the the United States Department of Education or approved by the State agency responsible for secondary and postsecondary education, or approved by a Federal agency conducting dental assistant education in that Agency.

3. The sponsoring entity and the dental radiography training must be approved by the State entity responsible for approving dental assisting education programs, or the State entity responsible for credentialing dental personnel in radiography.

B. Curriculum

Dental radiography training for dental assistants must provide sufficient content and instructional time to assure competent performance.

1. The dental radiography curriculum content and learning experiences must include the theoretical aspects of the subject as well as practical application of techniques. The theoretical aspects should provide content necessary for dental assistants to understand the critical nature of the radiological procedures they perform and of the judgments they make as related to patient and operator radiation safety.

2. The dental radiography curriculum must include content in seven areas: radiation physics; radiation biology; radiation health, safety, and protection; X-ray films and radiographic film quality; radiographic techniques; darkroom and processing techniques; and film mounting.

—*Radiation Physics.* Curriculum content should include: Historical background; role of radiology in modern dentistry; types of radiation; X-ray production principles; operation of X-ray equipment; properties of X-radiation; and X-radiation units, detection and monitoring devices.

—*Radiation Biology.* Curriculum content should include: interaction of ionizing radiation with cells, tissues, and matter; factors influencing biological response of cells and tissues to ionizing radiation; somatic and genetic effects of radiation exposure; and cumulative effects of X-radiation and latent period.

—*Radiation Health, Safety, and Protection.* Curriculum content should include: sources and types of radiation exposure; public health implications and public concerns; principles of radiological health including collimation and filtration; radiation protection methods in the dental office; necessity for high diagnostic yield with a reduction of X-radiation exposure; and monitoring devices.

—*X-ray Films and Radiographic Film Quality.* Curriculum content should include: X-radiation production and scatter; X-ray beam quality and quantity; factors influencing radiographic density, contrast, definition, and distortion; film characteristics; dosage related to film speed; types of films, cassettes, and screens; and film identification systems.

—*Radiographic Techniques.* Curriculum content should include: imagery geometry; patient positioning; film/film holder positioning; cone positioning and exposure settings for the intraoral paralleling technique, bisecting the angle technique, and techniques for occlusal radiographs; extraoral panoramic techniques; and patient variations that affect the above techniques.

—*Darkroom and Processing Techniques.* Curriculum content should include: Solution chemistry and quality maintenance; darkroom equipment and safe lighting; film processing techniques; automatic film processing; and processing errors.

—*Film Mounting.* Curriculum content should include: anatomical landmarks essential to mounting films; film mounting procedures; and diagnostic quality of radiographs.

3. The curriculum must also include clinical practice assignments.

—Clinical practice assignments must be an integral part of the curriculum so that Dental Assistants have the opportunity to develop competence in making radiographs. The clinical experience may be conducted in the dental office in which the Dental Assistant is employed or is serving an externship. Faculty and/or employing dentist supervision must be provided during a student's radiographic technique experience. Students must demonstrate competence in making diagnostically acceptable radiographs prior to their clinical practice when there is not direct supervision by faculty and/or the employing dentist.

—Dental Assistants must demonstrate knowledge of radiation safety measures before making radiographs, and where possible should demonstrate competence on manikins before making radiographs on patients. Radiographs must be exposed for diagnostic purposes and not solely to demonstrate techniques or obtain experience.

—The clinical experience should provide opportunity to make a variety of radiographs and radiographic surveys, including primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

C. Student Evaluation

Evaluation procedures must be developed to assess performance and achievement of dental radiography program objectives.

D. Faculty

The dental radiography training must be conducted by faculty who are qualified in the curriculum subject matter.

1. This may include a D.D.S./D.M.D. degree; graduation from an accredited dental assisting or dental hygiene education program with a certificate or an associate or baccalaureate degree; status as a Certified Dental Assistant certified by the Dental Assisting National Board; or recognition as equivalently qualified by the State entity (or Federal agency where appropriate) which approves the educational program in dental radiography.

2. The faculty-to-student ratio must be adequate to achieve the stated objectives of the curriculum.

E. Facilities

Adequate radiographic facilities must be available to permit achievement of the dental radiography training objectives. The design, location, and construction of radiographic facilities must provide optimum protection from X-radiation for patients and operators. Equipment shall meet State and Federal laws related to radiation. Monitoring devices shall be worn by dental personnel. Lead aprons must be placed to protect patients. Safe storage for films must be provided. Darkroom facilities and equipment must be available and of a quality that assures that films will not be damaged or lost.

F. Learning Resources

A wide range of printed materials, instructional aids, and equipment must be available to support instruction. Current specialized reference texts should be provided; and models, replicas, slides, and films which depict current techniques should be available for use in instruction. As appropriate self-instructional materials become available, they should be provided for the student's use.

Note.—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

Appendix D—Standards for Accreditation of Educational Programs for Nuclear Medicine Technologists

A. Sponsorship

1. Accreditation will be granted to the institution that assumes primary responsibility for curriculum planning and selection of course content; coordinates classroom teaching and supervised clinical education; appoints faculty to the program; receives and processes applications for admission; and grants the degree or certificate documenting completion of the program.

2. Educational programs may be established in:

(a) Community and junior colleges, senior colleges, and universities;

(b) Hospitals and clinics;

(c) Laboratories;

(d) Medical schools;

(e) Postsecondary vocational/technical schools and institutions; and

(f) Other acceptable institutions which meet comparable standards.

3. The sponsoring institution and affiliate(s) must be accredited by a recognized agency. When the sponsoring institution and affiliate(s) are not so recognized, they may be considered as meeting the requirements of accreditation if the institution meets or exceeds established equivalent standards.

4. Responsibilities of the sponsor and each affiliate for program administration, instruction, supervision, etc., must be carefully described in written affiliation agreements.

B. Curriculum

Instruction must follow a plan which documents:

1. A structured curriculum including clinical education with clearly written syllabi which describe learning objectives and competencies to be achieved. The curriculum shall be based on not less than one calendar year of full-time study or its equivalent.

2. The minimum professional curriculum that includes the following:

(a) Methods of patient care;

(b) Radiation safety and protection;

(c) Nuclear medicine physics;

(d) Radiation physics;

(e) Nuclear instrumentation;

(f) Statistics;

(g) Radionuclide chemistry;

(h) Radiopharmacology;

(i) Departmental organization and function;

(j) Radiation biology;

(k) Nuclear medicine *in vivo* and *in vitro* procedures;

(l) Radionuclide therapy;

(m) Computer applications; and

(n) Clinical practicum.

3. Assignment of appropriate instructional materials.

4. Classroom presentations, discussions, and demonstrations.

5. Supervised practice, experience, and discussions. This shall include the following:

(a) Patient care and patient recordkeeping;

(b) Participation in the quality assurance program;

(c) The preparation, calculation, identification, administration, and disposal of radiopharmaceuticals;

(d) Radiation safety techniques that will minimize radiation exposure to the patient, public, fellow workers, and self;

(e) The performance of an adequate number and variety of imaging and non-imaging procedures; and

(f) Clinical correlation of nuclear medicine procedures.

6. Evaluation of student's knowledge, problem-solving skills, and motor and clinical competencies.

7. The competencies necessary for graduation.

C. Resources

1. The program must have qualified program officials. Primary responsibilities shall include program development, organization, administration, evaluation, and revision. The following program officials must be identified:

(a) *Program Director*—(1) *Responsibilities.* The program director of the educational program shall have overall responsibility for the organization, administration, periodic review, continued development, and general effectiveness of the program. The director shall provide supervision and coordination to the instructional staff in the academic and clinical phases of the program. Regular visits to the affiliates by the program director must be scheduled.

(2) *Qualifications.* The program director must be a physician or nuclear medicine technologist. The program director must demonstrate proficiency in instruction, curriculum design, program planning, and counseling.

(b) *Medical Director*— (1) *Responsibilities.* The medical director of the program shall provide competent medical direction and shall participate in the clinical instruction. In multiaffiliate programs each clinical affiliate must have a medical director.

(2) *Qualifications.* The medical director must be a physician qualified in the use of radionuclides and a diplomate of the American Board(s) of Nuclear Medicine, or

Pathology, or Radiology, or possess suitable equivalent qualifications.

(c) *Clinical Supervisor.* Each clinical affiliate must appoint a clinical supervisor.

(1) *Responsibilities.* The clinical supervisor shall be responsible for the clinical education and evaluation of students assigned to that clinical affiliate.

(2) *Qualifications.* The clinical supervisor must be a technologist credentialed in nuclear medicine technology.

2. *Instructional Staff*—(a) *Responsibilities.* The instructional staff shall be responsible for instruction in the didactic and/or clinical phases of the program. They shall submit course outlines for each course assigned by the program director; evaluate students and report progress as required by the sponsoring institution; and cooperate with the program director in the periodic review and upgrading of course material.

(b) *Qualifications.* The instructors must be qualified, knowledgeable, and effective in teaching the subjects assigned.

(c) *Instructor-to-student ratio.* The instructor-to-student ratio shall be adequate to achieve the stated objectives of the curriculum.

(d) *Professional development.* Accredited programs shall assure continuing education in the health profession or occupation and ongoing instruction for the faculty in curriculum design and teaching techniques.

3. Financial resoures for continued operation of the educational program must be assured.

4. *Physical Resources.* (a) *General.* Adequate classrooms, laboratories, and other facilities shall be provided.

(b) *Equipment and Supplies.* Modern nuclear medicine equipment, accurately calibrated, in working order, and meeting applicable Federal and State standards, if any, must be available for the full range of diagnostic and therapeutic procedures as outlined in the curriculum.

(c) *Reference Materials.* Reference materials appropriate to the curriculum shall be readily accessible to students.

(d) *Records.* Records shall be maintained as dictated by good educational practices.

5. *Instructional Resources.* Instructional aids such as clinical materials, reference materials, demonstration and other multimedia materials must be provided.

D. Students

Admission Requirements

Persons admitted into nuclear medicine technology programs shall have completed high school or its equivalent. They shall have completed postsecondary courses in the following areas:

(1) Human anatomy and physiology;
(2) Physics;
(3) Mathematics;
(4) Medical terminology;
(5) Oral and written communications;
(6) General chemistry; and
(7) Medical ethics.

Prerequisites may be completed during nuclear medicine training. Educational institutions such as junior colleges, universities, and technical vocational institutes may provide these prerequisite courses as part of an integrated program in nuclear medicine technology (i.e., two to four years).

E. Operational Policies

Students may not take the responsibility nor the place of qualified staff. However, students may be permitted to perform procedures after demonstrating proficiency, with careful supervision.

F. Continuing Program Evaluation

1. Periodic and systematic review of the program's effectiveness must be documented.

2. One element of program evaluation shall be the initial employment of graduates of the program.

Note.—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

Appendix E—Standards for Accreditation of Educational Programs for Radiation Therapy Technologists

A. Sponsorship

1. Educational programs may be established in:

(a) Community and junior colleges, senior colleges, and universities;

(b) Hospitals, clinics, or autonomous radiation oncology centers meeting the criteria for major cancer management centers or meeting demonstrably equivalent standards;

(c) Medical schools; and

(d) Postsecondary vocational/technical schools and institutions.

2. The sponsoring institution and affiliates, if any, must be accredited by recognized agencies or meet equivalent standards. When more than one clinical education center is used, each must meet the standards of a major cancer management center.

3. When didactic preparation and supervised clinical education are not provided in the same institution, accreditation must be obtained by the sponsoring institution for the total program. This institution will be the one responsible for admission, curriculum, and academic credit. The accredited institution shall be responsible for coordinating the program and assuring that the activities assigned to the student in the clinical setting are educational. There shall be a uniform, written, affiliation agreement between the accredited institution and each clinical education center, clearly defining the responsibilities and obligations of each.

B. Curriculum

Educational programs of 24 months and 12 months or their equivalents may be developed. A 24-month program shall admit those candidates with a high school diploma (or equivalent) as outlined in D.1. The 12-month program shall be designed for those students admitted with backgrounds as outlined in D.2.

Instruction must follow a plan which documents:

1. A structured curriculum with clearly written course syllabi which describe competencies and learning objectives to be achieved. The curriculum shall include but not necessarily be limited to the following:

(a) Orientation to radiation therapy technology;
(b) Medical ethics and law;
(c) Methods of patient care;
(d) Medical terminology;
(e) Human structure and function;
(f) Oncologic pathology;
(g) Radiation oncology;
(h) Radiobiology;
(i) Mathematics;
(j) Radiation physics;
(k) Radiation protection;
(l) Radiation oncology technique;
(m) Radiographic imaging; and
(n) Clinical dosimetry.

The curriculum must include a plan for well-structured competency-based clinical education.

2. Assignment of appropriate instructional materials.

3. Classroom presentations, discussions, and demonstrations.

4. Supervised clinical education and laboratory practicum.

5. Evaluation of students to assess knowledge, problem-solving skills, and motor and clinical competencies.

6. Program graduates must demonstrate competencies including, but not limited to, the following:

(a) Practice oral and written communications;
(b) Maintain records of treatment administered;
(c) Perform basic mathematical functions;
(d) Demonstrate knowledge of human structure, function, and pathology;
(e) Demonstrate knowledge of radiation physics in radiation interactions and radiation protection techniques;
(f) Provide basic patient care and cardiopulmonary resuscitation;
(g) Deliver a planned course of radiation therapy;
(h) Verify physician's prescribed course of radiation therapy and recognize errors in computation;
(i) Demonstrate awareness of patterns of physical and emotional stress exhibited by patients;
(j) Produces and utilize immobilization and beam directional devices;
(k) Prepare commonly used brachytherapy sources;
(l) Demonstrate knowledge of methods of calibration of equipment, and quality assurance;
(m) Prepare isodose summations;
(n) Detect malfunctioning equipment;
(o) Apply rules and regulations for radiation safety, and detect defects which might pose a radiation hazard;
(p) Understand the function of equipment and accessories;
(q) Demonstrate knowledge of methods of continuing patient evaluation (follow up);
(r) Apply wedge and compensating filters;
(s) Recognize patients' clinical progress, complications, and demonstrate knowledge of when to withhold treatment until consultation with the physician; and
(t) Interact with patients and families concerning the physical and psychological needs of patients.

C. Resources

1. *Program Officials.* The program must have a qualified program official or officials. Primary responsibilities shall include program development, organization, administration, evaluation, and revision. A program director is necessary; other program officials may be required.

(a) *Program Director*—(1) *Responsibilities.*

—The director of the educational program shall be responsible for the organization, administration, periodic review, continued development, and general effectiveness of the program. The program director's responsibilities in teaching, administration, and coordination of the educational program in radiation therapy technology shall not be adversely affected by educationally unrelated functions.

—In a college-sponsored program, or a hospital-sponsored multiple affiliate program, the program director shall be a employee of the sponsoring institution. A schedule of regular affiliate visits must be maintained.

(2) *Qualifications.*

—Must be a technologist qualified in radiation therapy technology and educational methodologies.

—Must be credentialed in radiation therapy technology or possess suitable equivalent qualifications.

—Must have at least two years' experience as an instructor in an accredited educational program.

(b) *Clinical Supervisor.* Each clinical education center shall appoint a clinical supervisor.

(1) *Responsibilities.* The clinical supervisor shall be responsible for the clinical education and evaluation of students assigned to that clinical education center.

(2) *Qualifications.* Must be a technologist, with suitable experience, qualified in radiation therapy technology and educational methodologies and must be credentialed in radiation therapy technology.

(c) *Medical Director/Medical Advisor*—

(1) *Responsibilities.* The medical director/medical advisor shall work in consultation with the program director in developing the goals and objectives of the program and implementing the standards for achievement.

(2) *Qualifications.* The medical director/medical advisor shall be a qualified radiation oncologist certified by the American Board of Radiology, or shall possess suitable equivalent qualifications.

2. *Instructional Staff*— (a) *Responsibilities.* The instructional staff shall be responsible for submitting course outlines for each course assigned by the program director; evaluating students and reporting progress as required by the sponsoring institution; and cooperating with the program director in the periodic review and upgrading of course material.

(b) *Qualifications.* The instructors must be individually qualified, must be effective in teaching the subjects assigned, and must meet the standards required by the sponsoring institution.

(c) *Instructor-to-Student Ratio.* The instructor-to-student ratio shall be adequate to achieve the stated objectives of the curriculum.

(d) *Professional Development.* Programs shall have a policy that encourages continuing education in radiation therapy technology and assures ongoing instruction for the faculty in curriculm design and teaching strategies.

3. *Financial Resources.* Financial resources for continued operation of the educational program must be assured.

4. *Physical Resources*—(a) *General.* Adequate classrooms, laboratories, and other facilities shall be provided. All affiliated institutions shall provide space required for these facilities.

(b) *Equipment and Supplies.* Appropriate modern equipment and supplies in sufficient quantities shall be provided.

(c) *Laboratory.* Energized laboratories must meet Federal and/or State radiation and safety regulations.

(d) *Reference Materials.* An adequate supply of up-to-date books, periodicals, and other reference materials related to the curriculum and the profession shall be readily available to students.

(e) *Records.* Records shall be maintained as dictated by good educational practices.

5. *Instructional Resources.* Instructional aids such as clinical materials, reference materials, and demonstration and other multimedia materials must be provided.

D. Students

Admission

1. Applicants must be high school graduates (or equivalent) with an educational background in basic science and mathematics.

2. For admission to a 12-month program, the candidate must satisfy one of the following requirements:

(a) Graduation from an accredited or equivalent program in radiography.

(b) Successful completion or challenge of courses in the following prerequisite content areas:

—Radiation physics;
—Human structure and function;
—Radiation protection;
—Medical ethics and law;
—Methods of patient care;
—Medical terminology; and
—Mathematics.

(c) Successful demonstration of the following competencies:

—Practice oral and written communications;
—Perform basic mathematical functions;
—Demonstrate knowledge of human structure and function;
—Demonstrate knowledge of radiation physics in radiation interactions and radiation protection techniques;
—Provide basic patient care and cardiopulmonary resuscitation;
—Demonstrate awareness of patterns of physical and emotional stress exhibited by patients;
—Apply rules and regulations for radiation safety, detect defects which might pose a radiation hazard, and maintain control, if a radiation accident occurs; and
—Interact with patients and families concerning patients physical and psychological needs.

E. Continuing Program Evaluation

1. A process for periodic and systematic review of the program's effectiveness must be documented and reflected in policies.

2. Program evaluation shall include the employment performance of recent graduates.

Note.—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

Appendix F—Standards for Licensing Radiographers, Nuclear Medicine Technologists, and Radiation Therapy Technologists

The following section describes basic elements to be incorporated in credentialing programs of States that choose to regulate personnel who perform radiologic procedures.

A. Licensure

1. Only eligible applicants who have passed the licensure examination shall be licensed as Radiographers, Nuclear Medicine Technologists, or Radiation Therapy Technologists.

2. Licenses shall be renewed at periodic intervals.

B. Eligibility

1. For regular eligibility to take the licensure examination, applicants shall have successfully completed an accredited program of formal education in radiography, nuclear medicine technology, or radiation therapy technology.

2. Special eligibility to take the licensure examination shall be provided for applicants whose training and/or experience are equal to, or in excess of, those of a graduate of an accredited educational program.

C. Examination

A criterion-referenced examination in radiography, nuclear medicine technology, or radiation therapy technology shall be utilized to test the knowledge and competencies of applicants.

D. Continuing Competency

The licensed Radiographer, Nuclear Medicine Technologist, or Radiation Therapy Technologist shall maintain continuing competency in the area in which he/she is practicing.

E. Policies and Procedures

An organization that seeks to be recognized for the certifying of personnel shall adopt definite policies to ensure validity, objectivity, and fairness in the certifying process. The National Commission for Health Certifying Agencies (NCHCA) has published suitable criteria for a certifying organization to adopt with respect to policies for: (1) Determination of appropriate examination content (but not the actual content for any specific occupation); (2) construction of examinations; (3) administration of examinations; and (4) fulfilling responsibilities to applicants. An organization (whether an NCHCA member or not) that adopts these or equivalent criteria

will meet all of the requirements of this section of these standards.

Appendix G.—Standards for Licensing Dental Hygienists and Dental Assistants in Dental Radiography

The following section describes basic elements to be incorporated in credentialing programs of States that choose to regulate personnel who perform radiologic procedures.

Currently, Dental Hygienists are credentialed through individual State licensure processes, all of which include assessment of competence in dental radiography. In all States, Dental Hygienists are required to be licensed prior to practicing. The existing State dental hygiene licensure processes meet the intent and purpose of the Consumer-Patient Radiation Health and Safety Act of 1981 and the standards for licensing Dental Hygienists in dental radiography set forth below.

A. Licensure/Permit

1. To those who have passed a licensure or designated dental radiography examination, a license or permit shall be issued by the State entity responsible for credentialing dental personnel.

2. Licenses or permits shall be renewed at periodic intervals.

B. Eligibility

1. An individual shall provide proof of graduating student status or graduation from an accredited or approved dental hygiene or dental assisting education program.

2. For dental assistants, special eligibility to take the examination shall be provided to applicants with appropriate combinations of training and/or experience.

C. Examination

A criterion-referenced examination in dental radiography shall be utilized to test the knowledge and competencies of applicants.

D. Continuing Competency

The Dental Hygienist or Dental Assistant shall be required to maintain continuing competency in the area in which he/she is practicing.

E. Policies and Procedures

An organization that seeks to be recognized for the certifying of personnel shall adopt definite policies to ensure validity, objectivity, and fairness in the certifying process. The National Commission for Health Certifying Agencies (NCHCA) has published suitable criteria for a certifying organization to adopt with respect to policies for: (1) Determination of appropriate examination content (but not the actual content for any specific occupation); (2) construction of examinations; (3) administration of examinations; and (4) fulfilling responsibilities to applicants. An organization (whether an NCHCA member or not) that adopts these or equivalent criteria will meet all of the requirements of this section of these standards.

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